ABSTRACT OF THE INVENTION

A substrate and a method for fabricating variable quality substrate materials are provided. The method comprises: selecting a first mask having a first mask pattern; projecting a laser beam through the first mask to anneal a first area of semiconductor substrate; creating a first condition in the first area of the semiconductor film; selecting a second mask having a second mask pattern; projecting the laser beam through the second mask to anneal a second area of the semiconductor film; and, creating a second condition in the second area of the semiconductor film, different than the first condition. More specifically, when the substrate material is silicon, the first and second conditions concern the creation of crystalline material with a quantitative measure of lattice mismatch between adjacent crystal domains. For example, the lattice mismatch between adjacent crystal domains can be measured as a number of high-angle grain boundaries per area.